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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/623,977	09/11/2000	Peter James Hughes	36-1359	1871
23117	7590	10/06/2004	EXAMINER	
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			FOSTER, ROLAND G	
			ART UNIT	PAPER NUMBER
			2645	

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/623,977	<b>Applicant(s)</b> HUGHES, PETER JAMES	
	<b>Examiner</b> Roland G. Foster	<b>Art Unit</b> 2645	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 26, 2004 has been entered.

### ***Specification***

The amendment filed July 26, 2004 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material, which is not supported by the original disclosure, is as follows: the applicant removed the phrase "[t]he signal mixing" and replaced the term with a new phrase "[a] signal concentration." This amendment seems to be intended to counter the examiner's interpretation of the term "multichannel connection" as including signal mixing (as discussed below and in previous Office actions). Applicant argues that Fig. 2 supports applicant's amendment (page 13 of the amendment). Although Fig. 2 may or may not support the phrase "signal concentration", the applicant has not pointed out where the specification supports removing the originally disclosed phrase "signal mixing" thus broadening and/or materially changing the specification in a manner not originally disclosed by the applicant. Applicant is required to cancel the new matter in the reply to this Office Action.

***Response to Arguments***

Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 10-14, and 16-26 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,617,539 to Ludwig et al. (hereinafter "Ludwig"), of record.

With respect to claim 22, see the following paragraphs for details on how Ludwig discloses particular limitations within the claim.

The limitation "teleconferencing system" reads on Figs. 1, 3, and col. 8, line 66 – col. 9, line 6.

The limitation "a conference bridge including a concentrator that receives a plurality of M input channels, and a plurality of multichannel connections each of which passes a plurality of N individual channels, the N individual channels being a subset of the M input channels" reads

on Ludwig as follows. The conference bridge 35 (Fig. 3) comprises audio mixing circuitry 38 (Fig. 9 and col. 12, lines 63-67), which mixes the participant input channels 114-n into several, summed output signals (e.g., 38a-1, 38a-2, 38b) (col. 13, lines 1-6). The conference bridge 35 then mixes the input signals into a "sum" output (mix) 38b. Thus, the conference bridge concentrates M input channels into summed output signals, otherwise the "summing" process disclosed by Ludwig above would not occur. Further, the summed output signals 38a-1 to 38b are multichannel (summed) output comprising the N individual channels, which are a subset of the M input channels.<sup>1</sup>

The limitation "a plurality of terminal equipments each of which is connected to the concentrator of the conference bridge through a respective one of the plurality of multichannel connections passing a plurality of N individual channels, each of the terminals including a demultiplexer which separates the N individual channels received through the respective one of the multichannel connections" reads on Ludwig as follows. The plurality of terminal equipments (A/V switches 30 at user locations A, B, C, and D) receive multi-channel output comprising the N individual channels from the conference bridges 35 and their associated concentrator output (as discussed above). In addition, the A/V switch 30 has a demultiplexer means to separately process each received channel to provide a plurality of outputs. For example, Fig. 15 illustrates

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<sup>1</sup> Interpreting the claim term "multichannel" as an audio output comprising a mix of several channels is consistent with the applicant's specification, which states that the "signal mixing can take place either...in a centralized processing platform as is shown in Figure 2" (page 3, lines 28-31). A mixed signal comprises the various channels that make up the mix, otherwise mixed signals resulting from modulations techniques (e.g., amplitude and frequency) and multiplexing techniques (e.g., amplitude, frequency, time or combinations thereof) could not be said to carry multiple channels, which is assuredly not the case. Thus, a mixed signal of various channels (corresponding to conference participants) is provided by the conference bridge to the terminal equipment for processing.

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that the same model A/V switch 30 has the capability to separately process (demultiplex) each of the received channels A, B, C and D of the received multichannel output from the conference bridge into individual channels.<sup>2</sup> In another example, Fig. 14 illustrates that the A/V switch 30 at Site No. 1 (participants A and B) has the means to individually process (demultiplex) the received channels A, B, C, and D of the received multichannel SIMULTANEOUSLY.

Claim 23 differs substantively from claim 22 in that claim 23 recites a method comprising steps equivalent to the system functions recited in claim 22. Therefore, see the claim 22 rejection for further details.

Claim 26 differs substantively from claim 21 in that claim 26 is recited more broadly. Therefore, see the claim 22 rejection for further details.

Claim 1 differs substantively from claim 22 in that claim 1 recites that each multichannel connection comprises a plurality of individual channels and that the terminal equipment receives the individual channels through a respective one of the multichannel connections, where the terminal equipments have means to separately process each received channel. However, as discussed in the claim 22 rejection above, the conference bridge outputs a multichannel comprising the sum (mix) of various, individual input channels consistent with the applicant's

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<sup>2</sup> Multiplex is interpreted as transmitting two or more signals on one signal. Thus, the conference bridge transmits two or more input channels using the mixing (summing) processes as one signal (summed output or multichannel output). Thus, "demultiplexing" is interpreting as recovering the original two or more signals from the conference bridge mixed (summed) output, which is the function performed by the A/V switch disclosed by Ludwig.

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specification. Further, the terminal equipment comprises a mean to process each received channel to provide a plurality of outputs.

Claim 10 differs substantively from claim 1 in that claim 10 recites a method whose steps are equivalent to the functions performed by the system of claim 1.

Claims 3 and 12 differ substantively from claims 1 and 10 respectively in that claims 3 and 12 recite additional limitation. The limitation "conference bridge comprises a concentrator, having means to identify the currently active input channels" reads on the audio mixing circuitry 38 in the conference bridge, which also concentrates all the received input channels in into a limited number of mixed, output channels (multichannels) (as discussed above). The claim also recites a means to "transmit only those active channels over the multichannel connection together with control information identifying the transmitted channels." The conference bridge relies on the audio video network manager (AVNM) 63 to determine active channels using a "callhandle process" (col. 22, line 56 - col. 23, line 52). Only active channels are transmitted during the conference session. The channels are transmitted via a LANs and WANs (Fig. 1) therefore control information is required to identify the transmitted channels.

Claims 16 and 17 differ substantively from claims 1 and 10 respectively in that claims 16 and 17 recite "monaural channels," which reads on col. 7, lines 43-50.

With respect to claims 2 and 11, see col. 17, lines 55-60. Using stereo audio to create a "spatial metaphor" for each user is equivalent to creating a space identity corresponding to each user (i.e., a virtual sound source for each user).

With respect to claims 4-6 and 13, see col. 13, lines 1-13 where the CMS (terminal) comprises the audio-mixer as discussed above.

With respect to claim 7, see Fig. 35, "Mute" for various participants.

With respect to claims 8 and 14, see col. 15, lines 46-55 and col. 17, lines 9-36 where the collaborative multimedia workstations (CMW) 12 (also terminal equipment) comprise echo cancellation.<sup>3</sup> Echo cancellation requires correlating signals between the output and input in order to reduce echo and feedback signal components that are output and then fed back or reflected (echoed) back into the input.

With respect to claims 18 and 19, the channel created by the active call would be a subset of input channels in the conference bridge.

With respect to claims 20 and 21, see the claim 22 rejection for further details.

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<sup>3</sup> Interpreting "terminal equipment" broadly enough to cover both a concentrator type device such as A/V switch 30 and the end-user workstations (CMWs) is consistent with the applicant's specification, which illustrates the terminal equipment as both a concentrator type device (Fig. 7, concentrator 10) and as an end-user workstation (Fig. 2, customer equipment 10). Further, the CMWs also receive the multichannel signal (Fig. 26) as required in the parent claims. Note that the parent claims do not require that every terminal equipment that receives a multichannel signal



With respect to claims 24 and 25, the system disclosed by Ludwig is certainly selects and passes conference participant video and audio data (useful information). See also the claim 3 rejection regarding active (useful) channel detection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ludwig as applied to claims 1, 8, 10, and 14 above.

Although Ludwig discloses an adaptive echo canceller producing an echo cancellation signal as discussed above (col. 17, lines 9-36), Ludwig fails to disclose using adaptive filters on each channel and feeding the output into a combiner in order to produce the echo cancellation signal.

However, "Official Notice" was taken in a prior Office action that both the concept and advantages of using adaptive filters on each of a plurality of channels and feeding the output into a combiner would have been well-known and expected in the art of multi-channel, signal

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must also process each channel individually, which is consistent with a claim structure attempting to broadly cover

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processing systems such as echo cancellers used in a conferencing environment. The applicant's lack of traverse to the officially noticed fact in the last Office action is taken as an admission of the facts noticed.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add adaptive filtering on each channel with output fed into a combiner to the adaptive echo canceller disclosed by Ludwig.

The suggestion/motivation for doing so would have been to increase the accuracy and flexibility of adaptive filtering used in an echo canceller by individually adapting each channel because each channel is independent (especially in conferencing environments) and thus has varying levels of feedback and echo.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roland Foster whose telephone number is (703) 305-1491. The examiner can normally be reached on Monday through Friday from 9:00 a.m. to 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan S. Tsang, can be reached on (703) 305-4895. The fax phone number for this group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to customer service whose telephone number is (703) 306-0377.



Roland G. Foster  
Primary Patent Examiner  
October 1, 2004